

Section Overview

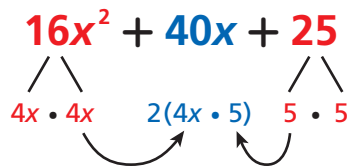
Factoring Special Products

Lesson 8-5

Why? Special products can be factored easily by using patterns. These factors can be used for finding perimeters of squares.

Perfect-Square Trinomial

The first and last terms are perfect squares and the middle term is two times one factor from the first term and one factor from the last term.

$$16x^2 + 40x + 25$$


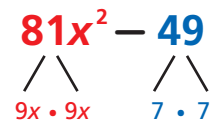
$$a^2 + 2ab + b^2 = (a + b)(a + b) = (a + b)^2$$

$$a^2 - 2ab + b^2 = (a - b)(a - b) = (a - b)^2$$

$$16x^2 + 40x + 25 = (4x + 5)(4x + 5) = (4x + 5)^2$$

Difference of Two Squares

There are two terms, one subtracted from the other, and both terms are perfect squares.

$$81x^2 - 49$$


$$a^2 - b^2 = (a + b)(a - b)$$

$$81x^2 - 49 = (9x + 7)(9x - 7)$$

Choosing a Factoring Method

Lesson 8-6

Why? Choosing the correct factoring method will help students factor correctly and easily.

To factor a polynomial completely, you may need to use more than one factoring method.

If none of the factoring methods work, the polynomial is said to be unfactorable.

$$12x^2 - 27y^2$$

$$3(4x^2 - 9y^2)$$

$$3(2x + 3y)(2x - 3y)$$

Factor out the GCF.

$4x^2 - 9y^2$ is a difference of squares.

$$6p^2q - 24pq + 12p^2 - 48p$$

$$6p(pq - 4q + 2p - 8)$$

$$6p[(pq - 4q) + (2p - 8)]$$

$$6p[q(p - 4) + 2(p - 4)]$$

$$6p(p - 4)(q + 2)$$

Factor out the GCF.

Factor by grouping.